

## **ABSTRACT OF THE DISCLOSURE**

A dual-phase level monitoring (DPLM) instrument that provides continuous signals that enables determination of the location of the top surface of the lighter of two immiscible fluids (the product) and the hydrostatic pressure below the total fluid column of both immiscible fluids. By knowing the fluid specific gravities, the output signals are processed to yield the location of the air / product and liquid / liquid interfaces, and the depth of the lighter phase. The instrument is intended for use in groundwater monitoring wells with a light non-aqueous phase liquid (product) and tanks or vessels with dual-phase liquids and level monitoring and / or control issues. The DPLM instrument includes a first pressure transducer situated beneath the surface of the liquid with a greater specific gravity, which will typically be ground water. A level element with a float selected so as to be buoyant and float on the surface of the lighter fluid is positioned above the first pressure transducer. A signal from the level element is proportional to the position of the float or the total distance the float is positioned above the bottom of the level element and therefore the total distance above the first pressure transducer, the pressure transducer located in the heavier liquid phase. A second pressure transducer can be deployed above the surface of the liquid if greater accuracy of measurement (as compared to assuming ambient pressure) is desired.